

Acellular Dermal Matrix Grafts for Root Coverage Procedures: Review of Products and Introduction of a New Technique

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LEARNING OBJECTIVES

- discuss drawbacks associated with conventional root coverage procedures
- explain the benefits of using acellular dermal matrix grafts to correct deficient gingival contours
- describe the laser-assisted vestibuloplasty approach (LAVA) for prevention of recurrent recession after surgical correction

Abstract: Gingival recession remains a significant problem in dental esthetics as well as periodontal health. Adequate zones of keratinized, attached tissue are vital for long-term periodontal health and maintenance. The correction of gingival recession is an important principle in cosmetic dental procedures that requires a harmonious gingival complex. Correction of deficient gingival tissues by either autogenous or allogenic tissue grafts has been well documented in the literature. This article will delineate differences among the various acellular dermal grafts as well as introduce a new technique that can enhance success.

Gingival recession has long been a key issue adversely affecting not only dental esthetics but periodontal health as well. The esthetic enhancement of the natural dentition is a significant component of the contemporary dental practice. Adequate zones of keratinized, attached tissue are important for a balanced, harmonious gingival complex as well as long-term periodontal health and maintenance.

Various procedures to correct deficient gingival contours have been well documented in the dental literature.^{1,2} Increasing zones of attached gingiva using palatal donor tissue and the free gingival grafting procedure was introduced by Björn almost a half century ago.³ Using palatal donor tissue in the form of a free soft-tissue autograft for root-coverage procedures was reported by Miller.⁴ Additional procedures were reported using lateral⁵ or coronal repositioning⁶⁻⁸ of the adjacent attached gingiva via a pedicle flap or the coronal repositioning of previously grafted tissue.^{9,10} Miller also reported on gingival grafts placed over root surfaces to correct areas of deep-wide gingival recession.¹¹ Further surgical advancements led to the use of subepithelial connective tissue from the palate to obtain root coverage.¹²⁻¹⁴ Figure 1 shows the pretreatment view of a mandibular central incisor, and Figure 2 depicts the post-treatment view of the site treated with a subepithelial connective tissue graft harvested from the patient's palatal tissues.

One of the impediments to patients' accepting soft-tissue procedures to correct gingival loss is the trauma from harvesting palatal donor tissue. Depending on the volume of tissue required to correct the recession, multiple harvesting procedures may be required. Also, the size of the autogenous graft that can be harvested at a single time is limited, and irregularity in thickness may be difficult to control. Moreover, there may be an inadequate amount of connective tissue present in a shallow palate, and the patient's medical status may also play a role in his or her candidacy for palatal donor site surgery.

Use of Acellular Dermal Matrix Grafts

As a result of some of these concerns, corrective gingival surgery eventually expanded to include the use of acellular dermal matrix grafts as a substitute for palatal connective tissue grafts.¹⁵⁻¹⁷ A major advance in dentistry has been the successful replacement of lost gingiva with acellular dermal matrix grafts. The use of such grafts for the oral rehabilitation of patients has greatly broadened the scope of clinical dentistry, with a major benefit to patients being the avoidance of palatal tissue harvesting. Acellular dermal matrix grafts have an advantage over autogenous subepithelial connective tissue grafts in that there is unlimited availability. Using an allograft allows for inclusion of as many sites as necessary in just one surgical procedure, which not only improves patient case acceptance but allows for the treatment of large-scale cases not previously possible. The surgical procedure is more efficient for the surgeon and less